$$Growth_{it} = Constant + \beta\, Entrepreneurship_{it} + \gamma\, [Conditioning\ Set]_{it} + Error_i$$

Where the subscript β and γ are the parameters to be estimated. Growth is the growth rate of per capita income in 2010 and 2012 in the three states. The conditioning set includes a set of exogenous control variables that specifies to each county. The framework used in this study to analyze the relationship between entrepreneurship and economic growth is based on the Solow Growth model.

The Impacts Entrepreneurship has on Economic Growth in Georgia, New Mexico and Kentucky Counties

Qianyu Zhang and Gibson Nene

Abstract

The study is primary analyzing the impacts that entrepreneurship have on economic growth in Georgia, New Mexico and Kentucky counties between 2010 and 2012. The three states form 313 counties altogether. Economic growth in a given county can be measured by looking at the growth rate of personal per capita income, and the eight control variables include education, government spending, per capita income, unemployment, white population, rural dummy and farm dummy variable. The variables of interest are firm, establishments and employment at all sizes less than 500, which composed 15 models in terms of different firm, establishment and employment sizes. The results of this study present clear relationships between the control variables and economic growth. Farm-based counties and personal per capita income are positively related to economic growth; while government spending and population density are inversely related to economic growth. These coefficients of the variables are statistically significant and robust to all models. The coefficients for rest of the variables are not statistically significant, which means that they cannot be used to explain the economic growth in the specific period of this study.

Model Specification

$$Growth_{it} = Constant + \beta\, Entrepreneurship_{it} + \gamma\, [Conditioning\ Set]_{it} + Error_i$$

Where the subscript β and γ are the parameters to be estimated. Growth is the growth rate of per capita income in 2010 and 2012 in the three states. The conditioning set includes a set of exogenous control variables that specifies to each county. The framework used in this study to analyze the relationship between entrepreneurship and economic growth is based on the Solow Growth model.

Objectives

The main objective of the current study is to empirically examine the impacts of entrepreneurship on the economic well-being of New Mexico counties, Georgia counties and Kentucky counties for the period 2010 to 2012, after controlling for the variables that have been found to affect economic growth in county level growth literaturethe small loans they are likely to receive.

Tables

Table1 Definitions

Variables	Definitions
Counties	Counties in Georgia, Kentucky and New Mexico
Growth	Growth rate of per capita income between 2010 and 2012
Firm 0 to19	Number of firms with less than 20 employees
Firm 20 to 99	Number of firms with 20-99 employees
Est 0 to 19	Number of establishments with less than 20 employees
Est 20 to 99	Number of establishments with 20-99 employees
Emp 0-19	Number of employees in enterprise with less than 20 to total employment
Emp 20-99	Number of employment work in enterprise with 20-99 to total employment
PopDen	Population density per mile square in 2010 in each county
Unemp	Unemployment population in 2010 in each county
Edu	Population with a bachelor's degree or higher in 2010
White	White population in 2010 in each county
Pcpi	Per capita personal income in 2010 in each county
Gov	Total government spending in 2010 in each county
Rural	Dummy variable for rural county =1, otherwise 0
Farm	Dummy variable for farm dependent county=1, otherwise 0

Table 2 Descriptive Statistics

Variables	Mean	Maximum	Minimum	Std. Dev.
Growth	1.659068	20.56887	-17.1918	4.925006
Firm 0 to 19	765.0288	21122	8	2021.58
Firm 20 to 99	86.53526	2541	1	235.8354
Firm 100 to 499	37.5	1056	1	92.70213
Est 0 to 19	768.25	21211	8	2030.573
Est 20 to 99	96.70192	2779	1	262.541
Est 100 to 499	55.0641	1615	1	145.0883
Emp 0 to 19	3055.173	73878	0	7477.515
Emp 20 to 99	2705.103	88703	0	7967.568
Emp 100 to 499	2191.058	80475	0	7017.224
Edu	9005.436	309300	102	29041.86
Gov	540268.5	16634192	8122	1417696
Pcpi	38313.55	105987	22335	10287.97
PopDen	147.551	2585.7	0.3	309.6278
Unemp	2500.946	50687	18	5522.783
White	35272.61	538714	604	63114.67
Rural	0.205128	1	0	0.404444
Farm	0.112179	1	0	0.316094

Table 3 OLS Results

Variable	Model 1	Model 2	Model 3	Model 4	Model 5
Intercept	-46.8782 (-1.7879)*	-46.8524 (-1.7684)*	-45.4263 (-1.9406)*	-41.0116 (-1.6249)	-41.0340 (-1.6260)
LnFirm	1.5530 (1.2290)				1.3948 (1.1118)
LnEst		1.5576 (1.2365)		1.3994 (1.1189)	
Emp			0.0001 (3.6894)***	0.0001 (3.3430)***	0.0001 (3.3452)***
Farm	5.1534 (4.5679)***	5.1527 (4.5688)***	5.0633 (4.9444)***	4.9090 (4.5192)***	4.9095 (4.5182)***
LnEdu	0.5434 (0.4005)	0.5416 (0.3998)	0.8961 (1.1470)	0.0559 (0.0442)	0.0577 (0.0455)
LnGovSpen	-2.2340 (-3.8431)***	-2.2370 (-3.8501)***	-2.3330 (-3.6074)***	-2.4367 (-3.9833)***	-2.4341 (-3.9769)***
LnPC Income	7.4285 (2.3996)**	7.4291 (2.3999)**	7.2838 (2.5182)**	7.1684 (2.4029)**	7.1678 (2.4025)**
LnPopDen	-1.3250 (-2.2670)**	-1.3250 (-2.2674)**	-1.4124 (-2.5336)**	-1.3694 (-2.3702)**	-1.3694 (-2.3699)**
LnUnemp	0.8587 (0.3673)	0.8637 (0.3699)	0.8945 (0.4298)	0.5479 (0.2441)	0.5434 (0.2418)
LnWhite	-0.5126 (-0.6723)	-0.5128 (-0.6730)	0.2475 (0.3065)	-0.1866 (-0.2506)	-0.1862 (-0.2499)
Rural	0.3027 (0.3877)	0.3026 (0.3876)	-0.3576 (-0.4686)	-0.1914 (-0.2464)	-0.1915 (-0.2466)
R-Squared	**0.3556**	0.3559	0.3654	0.3726	0.3725

Table 4 OLS Results

Variable	Model 6	Model 7	Model 8	Model 9	Model 10
Intercept	-46.8503 (-1.8485)*	-46.5422 (-1.8175)*	-44.8095 (-1.9095)*	-40.1486 (-1.6353)	-40.5331 (-1.6665)*
LnFirm	0.87934 (1.2373)				0.7654 (1.0910)
LnEst		0.8709 (1.2482)		0.7716 (1.1226)	
Emp			0.0001 (3.6594)***	0.0001 (3.6071)***	0.0001 (3.6021)***
Farm	5.2620 (4.853)***	5.2533 (4.8419)***	5.0937 (4.9546)***	5.0273 (4.7622)***	5.0372 (4.7752)***
LnEdu	1.0118 (1.0601)	1.0582 (1.1164)	1.0046 (1.2657)	0.6246 (0.6978)	0.5932 (0.6561)
LnGovSpen	-2.3499 (-3.5575)***	-2.3759 (-3.5728)***	-2.3469 (-3.6171)***	-2.5736 (-3.7376)***	-2.5459 (-3.7176)***
LnPCIncome	7.6043 (2.5395)**	7.6047 (-2.3576)**	7.1838 (-2.4824)**	7.2269 (2.4986)**	7.2276 (2.5009)**
LnPopDen	1.2125 (0.5609)	-1.3337 (-2.3576)**	-1.4104 (-2.5270)**	-1.3760 (-2.4590)**	-1.3921 (-2.4995)**
LnUnemp	1.2124 (0.5609)	1.1976 (0.5522)	0.9006 (0.4312)	0.8513 (0.4063)	0.8668 (0.4149)
LnWhite	-0.2405 (-0.3033)	-0.2936 (-0.3733)	0.2293 (0.2829)	-0.0014 (-0.0019)	0.0475 (0.0619)
Rural	0.1526 (0.1952)	0.1361 (0.1747)	-0.3141 (-0.4110)	-0.3037 (-0.3938)	-0.2873 (-0.3712)
R-Squared	0.3532	0.3532	0.3645	0.3694	0.3692

Table 5 OLS Results

Variable	Model 11	Model 12	Model 13	Model 14	Model 15
Intercept	-48.4283 (-1.9524)*	-49.3454 (-1.9864)**	-45.1109 (1.9131)*	-43.6396 (-1.8187)*	-42.9445 (-1.7913)*
LnFirm	0.6942 (1.5524)				0.51380 (1.1306)
LnEst		0.4546 (1.0935)		0.2947 (0.6992)	
Emp			0.0001 (3.6613)***	0.0001 (3.5918)***	0.0001 (3.4691)***
Farm	5.2720 (4.9911)***	5.2921 (4.9948)***	5.1057 (4.9419)***	5.0862 (4.8988)***	5.0749 (4.9001)***
LnEdu	1.1406 (1.2623)	1.3064 (1.4754)	1.0894 (1.3522)	0.9777 (1.1581)	0.8507 (0.9841)
LnGovSpen	-2.3198 (-3.6903)***	-2.2878 (-3.5617)***	-2.3459 (-3.6374)***	-2.4503 (3.7109)***	-2.4823 (-3.8254)***
LnPCIncome	7.5399 (2.5111)**	7.5630 (2.5191)**	7.1689 (2.4678)**	7.1813 (2.4684)**	7.1770 (2.4645)**
LnPopDen	-1.3583 (-2.4028)**	-1.3632 (-2.4065)**	-1.4028 (-2.5083)**	-1.3964 (-2.4899)**	-1.3910 (-2.4818)**
LnUmp	1.0884 (0.5005)	1.1493 (0.5277)	0.8638 (0.4128)	0.8049 (0.3815)	0.7626 (0.3617)
LnWhite	-0.0706 (-0.0838)	-0.1029 (-0.1223)	0.1989 (0.2443)	0.1499 (0.1840)	0.1603 (0.1959)
Rural	0.1631 (0.2116)	0.1249 (0.1613)	-0.2551 (-0.3329)	-0.2489 (-0.3254)	-0.2088 (-0.2747)
R-Squared	0.3531	0.3501	0.3631	0.3544	0.3664

Results

- Employment 0 to 19, 20 to 99 and 100 to 499 are statistically significant and robust to all model specification. As the number of employees in the enterprise increases by 1 employee, the growth rate will increase by 0.0001%. The coefficients remain the same in all sizes.
- The coefficients of Farm dummy variable are positive and statistically significant in all models, as comparing to counties that are not farm-based, the average growth rate of personal per capita income is 5.15%, 5.15%, 5.06%, 4.91%, 4.91%, 5.26%, 5.25%, 5.09 %, 5.03 %, 5.04%, 5.27%, 5.29%, 5.09%, 5.09% and 5.07% higher in farm dependent counties when compared to non-farm dependent counties in models 1 to 15, respectively.
- The negative and statistically significant coefficients of Government spending indicate that as government spending increases by one percent, the growth rate of personal per capita income decreases by 1.35%, 1.35%, 1.41%, 1.47%, 1.48%, 1.42 %, 1.43%, 1.41%, 1.55%, 1.53%, 1.4 %, 1.38%, 1.41%, 1.48% and 1.50% in models 1 to 15, respectively.
- Population density has a negative coefficient for all 14 models except for model 6. The negative coefficients indicate that as population density increases by one percent on average, the growth rate of personal per capita income decreases by 0.80%, 0.80%, 0.85%, 0.83%, 0.83% in models 1-5, respectively, and 0.80%, 0.85%, 0.83%, 0.84%, 0.82%, 0.82%, 0.85%, 0.84% and 0.84 in models 7 to 15, respectively. The positive coefficient on model 6 is insignificant, so there is no reliable explanation can be used when analyze the relationship.

Conclusions

The most important finding in this study is the empirical evidence on the effect of employment on the economic growth of Georgia, New Mexico and Kentucky counties. The coefficients of employment in all models that included this variable are positive and statistically significant. In models 4, 9, 14, the variables of interest include both firms and employment at all sizes, employment stays statistically significant, which means that firm sizes have no impact on the growth rate of personal per capita income in our study. Similarly, models 5, 10,15 included both establishments and employment at all sizes, where employment remains statically significant as well.

Given the high statistical significance of the coefficient of employment, policy makers should pay more attention on the labor force to create more jobs for people in the given counties.

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